

No.



8100064

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

North American Plant Breeders Inc.

Whereas, THERE HAS BEEN PRESENTED TO THE
Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *eighteen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT (U.S.C. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

ALFALFA

'Advantage'



Attest:

Kenneth H. Evans
Commissioner
Plant Variety Protection Office
Grain Division
Agricultural Marketing Service

In Testimony Whereof, I have hereunto set
my hand and caused the seal of the Plant
Variety Protection Office to be affixed
at the City of Washington
this 30th day of April in
the year of our Lord one thousand nine
hundred and eighty-four.

John R. Block

Secretary of Agriculture

INSTRUCTIONS

GENERAL: Send an original copy of the application and exhibits, at least 2,500 viable seeds, and \$500 fee (\$250 filing fee and \$250 examination fee) to U.S. Dept. of Agriculture, Agricultural Marketing Service, Livestock, Poultry, Grain and Seed Division, Plant Variety Protection Office, National Agricultural Library Building, Beltsville, Maryland 20705. (See section 180.175 of the Regulations and Rules of Practice.) Retain one copy for your files. All items on the face of the form are self-explanatory unless noted below.

ITEM

- 5 Give the date the applicant determined that he had a new variety based on (1) the definition in section 41(a) of the Act and (2) the date a decision was made to increase the seed.
- 13a Give: (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method; (2) the details of subsequent stages of selection and multiplication; (3) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified and (4) evidence of uniformity and stability.
- 13b Give a summary statement of the variety's novelty. Clearly state how this novel variety may be distinguished from all other varieties in the same crop. If the new variety most closely resembles one or a group of related varieties: (1) identify these varieties and state all differences objectively; (2) attach statistical data for characters expressed numerically and demonstrate that these differences are significant; and (3) submit, if helpful, seed and plant specimens or photographs of seed and plant comparisons clearly indicating novelty.
- 13c Fill in the Exhibit C, Objective Description form, for all characteristics for which you have adequate data.
- 13d Describe any additional characteristics that are not described, or whose description cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the description of characteristics that are difficult to describe, such as, plant habit, plant color, disease resistance, etc.
- 14a If "YES" is specified (seed of this variety be sold by variety name only as a class of certified seed) the applicant may NOT reverse his affirmative decision after the variety has either been sold and so labeled, his decision published, or the certificate has been issued. However, if the applicant specified "NO," he may change his choice. (See section 180.16 of the Regulations and Rules of Practice.)
- 15a See section 42 of the Plant Variety Protection Act and section 180.7 of the Regulations and Rules of Practice.



APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

INSTRUCTIONS: See Reverse.

No certificate for plant variety protection may be issued unless a completed application form has been received (5 U.S.C. 553).

1a. TEMPORARY DESIGNATION OF VARIETY NAPB 87		1b. VARIETY NAME Advantage		FOR OFFICIAL USE ONLY PV NUMBER 8100064	
2. KIND NAME Alfalfa		3. GENUS AND SPECIES NAME Medicago sativa		FILING DATE 3/9/81	TIME 2:30 A.M. P.M.
4. FAMILY NAME (BOTANICAL) Leguminacea FABACEAE		5. DATE OF DETERMINATION January 1978		FEE RECEIVED \$ 500.00 \$ 250.00	DATE 3/9/81 4/4/84
6. NAME OF APPLICANT(S) North American Plant Breeders		7. ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code) P. O. Box 2955, 5201 Johnson Drive, Mission, Kansas 66201		8. TELEPHONE AREA CODE AND NUMBER (913) 384-4940	
9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: (Corporation, partnership, association, etc.) Corporation		10. IF INCORPORATED, GIVE STATE AND DATE OF INCORPORATION Connecticut		11. DATE OF INCORPORATION March 9, 1973	
12. NAME AND MAILING ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS: Mr. Giles Dixon, North American Plant Breeders, P. O. Box 2955, Mission, KS 66201 Dr. Jim B. Moutray, North American Plant Breeders, R. R. #3, Ames, Iowa 50010					

13. CHECK BOX BELOW FOR EACH ATTACHMENT SUBMITTED:

- ☒ 13A. Exhibit A, Origin and Breeding History of the Variety (See Section 52 of the Plant Variety Protection Act.)
- ☒ 13B. Exhibit B, Novelty Statement.
- ☒ 13C. Exhibit C, Objective Description of the Variety (Request form from Plant Variety Protection Office.)
- ☐ 13D. Exhibit D, Additional Description of the Variety.

14a. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? (See Section 83(a). (If "Yes," answer 14B and 14C below.) ☐ YES ☒ NO

14b. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? ☒ YES ☐ NO

14c. IF "YES," TO 14B, HOW MANY GENERATIONS OF PRODUCTION BEYOND BREEDER SEED? ☒ FOUNDATION ☐ REGISTERED ☒ CERTIFIED

15a. DID THE APPLICANT(S) FILE FOR PROTECTION OF THIS VARIETY IN OTHER COUNTRIES? ☐ YES ☒ NO (If "Yes," give name of countries and dates.)

15b. HAVE RIGHTS BEEN GRANTED THIS VARIETY IN OTHER COUNTRIES? ☐ YES ☒ NO (If "Yes," give name of countries and dates.)

16. DOES THE APPLICANT(S) AGREE TO THE PUBLICATION OF HIS/HER (THEIR) NAME(S) AND ADDRESS IN THE OFFICIAL JOURNAL? ☒ YES ☐ NO

17. The applicant(s) declare(s) that a viable sample of basic seed of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

2-2-81

(DATE)

1-22-81

(DATE)

(SIGNATURE OF APPLICANT)

(SIGNATURE OF APPLICANT)

Exhibit A

Origin and Breeding History of the Variety

'Advantage'

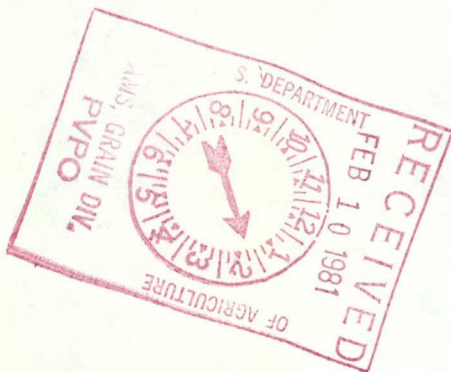
'Advantage' is a 305 clone synthetic cultivar selected from numerous populations which have undergone screening for winterhardiness and resistance to Phytophthora, anthracnose, bacterial wilt and Fusarium wilt, since 1971.

Breeder seed was formed by interpollination of cuttings of the 305 parent plants under field isolation near Nampa, Idaho.

During seed multiplication, no variants beyond the limits defined under Exhibit C have been found and multiplication procedures will ensure that seed being sold as 'Advantage' will not be shifted in characteristics beyond presently acceptable limits for alfalfa cultivars.

It is also confirmed that 'Advantage' meets presently acceptable levels of uniformity for alfalfa cultivars.

*See addendum (b. Statement of origin - p. 1 of Application
for certification by the Natl. Certified Alfalfa Variety Review
Board) on next page. CUBroome*



APPLICATION FOR REVIEW OF ALFALFA VARIETIES FOR CERTIFICATION 1/

National Certified Alfalfa Variety Review Board

(the criteria for evaluation of applications were developed by the Joint Alfalfa Work Conference and the Association of Official Seed Certifying Agencies)

Applicant's Name: North American Plant Breeders

Date: November 12, 1981

Address: 5201 Johnson Drive, P. O. Box 2955, Mission, Kansas 66201

Sponsoring Institution (if other than applicant):

Breeder's Name (if other than applicant's): J. B. Moutray, W. G. Hartman, J. C. Haight, and S. M. Hurst

Variety Name: Advantage

Experimental Designation: NAPB 87

The breeder or sponsoring institution or organization must describe and DOCUMENT in this application those characteristics of the variety which gave it distinctiveness and merit by supplying the information requested below. Action will be deferred unless application is sufficiently documented.

I. a. Estimate the genetic constitution of this variety according to percent of the nine germplasms described in USDA Technical Bulletin 1571, 1977.

M. Falcata	Ladak	M. Varia	Turkistan	Flemish	Chilean	Peruvian	Indian	African	Other
			GOOD ESTIMATE NOT POSSIBLE.						

Addendum to Exhibit A, per letter of March 30, 1984 from Giles Dixon - CRB memo 45-84
b. A statement of origin (including Variety name and/or P.I. number, and the number of plants from each, whenever possible) and the breeding procedures or methods used in developing this variety.

Advantage is a synthetic variety comprised of 305 clones selected from a number of populations which have undergone field and greenhouse screening for resistance to Phytophthora root rot, anthracnose, bacterial wilt, Fusarium wilt, plus selection for winterhardiness and leafhopper tolerance at Ames, Iowa since 1971. Selections trace predominately to Apollo, Vanguard, Titan, Anchor, Weevilchek and Atlas.

II. a. Describe the primary purpose of this variety (hay, grazing, etc.):

Hay, greenchop, and dehydration

b. List states and areas within states where the variety has been tested:

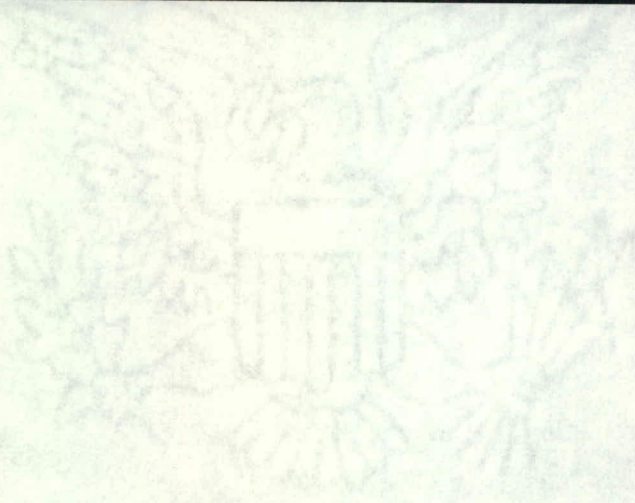
Test data are presented for the states of Iowa, Indiana, Illinois, Idaho, Nebraska, Wisconsin, Oklahoma and Minnesota.

c. Indicate proposed areas of adaptation and intended use (Maps attached):

All areas of Northern and Central regions of adaptation.

1/ Submit 12 copies of this application to Mr. Robert G. Sackett, Arizona Crop Improvement Association, University of Arizona, Bldg. #36 Old Agriculture, Rm. 140, Tucson, Arizona 85721. If printed or mimeographed material is enclosed with this application, please send 12 copies of such matter.

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Exhibit B

Novelty Statement

'Advantage'

'Advantage' most closely resembles the cultivar 'Apollo'. 'Advantage' differs from 'Apollo' by having susceptibility to spotted alfalfa aphid biotype H (Exhibit C) while 'Apollo' has resistance (enclosed table 1 from Trident No. 8000038 application).

100001

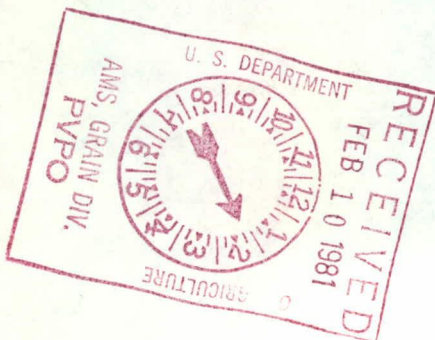
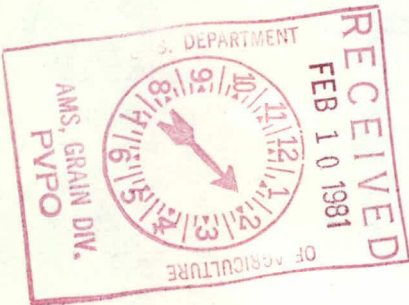


Table 1. Reaction of NAPB alfalfa varieties to spotted alfalfa aphid biotype H¹

Variety	% seedling survival	Variety	% seedling survival	Variety	% seedling survival
G7730	0	Apollo	48.25	Apollo	46.25
Answer	9.96	MSTT res.ck.	88.75	MSTT res. ck.	92.0
Trident	17.69				
MSTT res. ck.	75.55				
LSD.05	13.46	LSD.05	22.83	LSD.05	19.29
test August 1979		test October 1979		test January 1979	

¹Tests conducted by Dr. M. Nielson University of Arizona.

01000019



BILL OF SALE AND ASSIGNMENT

KNOW ALL MEN BY THESE PRESENTS that AGRIPRO BIOSCIENCES INC., a Delaware corporation (hereinafter referred to as "Seller"), pursuant to that certain Asset Purchase Agreement of even date herewith by and between Seller and AGR ACQUISITION CORPORATION, a Delaware corporation (hereinafter referred to as "Buyer") and for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, does hereby grant, bargain, sell, assign, convey and deliver unto Buyer, all of Seller's right, title and interest in and to the plant varieties owned/registered by Seller and more particularly set forth on Exhibit A attached hereto for which PVP Certificates have been issued by or may be pending before the U. S. Department of Agriculture.

TO HAVE AND TO HOLD UNTO PURCHASER, its successors and assigns forever.

IN WITNESS WHEREOF, Seller has executed this Bill of Sale and Assignment as of the 30th day of June, 1994.

AGRIPRO BIOSCIENCES INC.

BY: W.A. Zama
Title: President

STATE OF KANSAS, COUNTY OF JOHNSON

Before me, the undersigned, a Notary Public of the State and County aforesaid, personally appeared W.A. ZAMA with whom I am personally acquainted (or proved to me on the basis of satisfactory evidence) and who, upon oath, acknowledged himself to be the PRESIDENT of Agripro Biosciences Inc., the within named bargainor, a corporation, and that he as such PRESIDENT, being authorized so to do, executed the foregoing instrument for the purposes therein contained by signing the name of the corporation by himself as PRESIDENT.

WITNESS my hand and Notarial Seal at office the day and year above written.

Alma M. Weaver
Notary Public

My Commission Expires:

June 22, 1998

ALMA M. WEAVER
NOTARY PUBLIC
STATE OF KANSAS

My Appt. Exp. June 22, 1998

Office of the Secretary of State

I, EDWARD J. FREEL, SECRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY THE ATTACHED IS A TRUE AND CORRECT COPY OF THE CERTIFICATE OF AMENDMENT OF "AGR ACQUISITION CORPORATION", CHANGING ITS NAME FROM "AGR ACQUISITION CORPORATION" TO "AGRIPRO SEEDS, INC.", FILED IN THIS OFFICE ON THE THIRTIETH DAY OF JUNE, A.D. 1994, AT 4:30 O'CLOCK P.M.

A CERTIFIED COPY OF THIS CERTIFICATE HAS BEEN FORWARDED TO THE NEW CASTLE COUNTY RECORDER OF DEEDS FOR RECORDING.



Edward J. Freel

SECRETARY OF STATE
AUTHENTICATION:

7169071

DATE:

07-01-94

2394087 8100

944121584

06/30/84 14:25

913 384 0208

ABI SHAWNEE MSN

002/002

CERTIFICATE OF AMENDMENT
OF
CERTIFICATE OF INCORPORATION
OF
AGR ACQUISITION CORPORATION

AGR Acquisition Corporation, a corporation organized and existing under and by virtue of the General Corporation Law of the State of Delaware,

DOES HEREBY CERTIFY:

FIRST: that the Board of Directors of said corporation, by the unanimous written consent of its members filed with the minutes of the Board, adopted a resolution proposing and declaring advisable the following amendment to the Certificate of Incorporation of said corporation:

RESOLVED, that the Certificate of Incorporation of this corporation be amended by changing the Article thereof numbered "ARTICLE I" so that, as amended, said Article shall be and read as follows:

"ARTICLE I

Name

The name of the corporation (hereinafter called the 'Corporation') is Agripro Seeds, Inc."

SECOND: That in lieu of a meeting and vote of stockholders, the sole shareholder of the corporation has given unanimous written consent to said amendment in accordance with the provisions of Section 228 of the General Corporation Law of the State of Delaware.

THIRD: That the aforesaid amendment was duly adopted in accordance with the applicable provisions of Sections 242 and 228 of the General Corporation Law of the State of Delaware.

FOURTH: That the capital of said corporation shall not be reduced under or by reason of said amendment.

IN WITNESS WHEREOF, said AGR Acquisition Corporation has caused this certificate to be signed by Gary T. Hancock, its President, and attested by Ann Steelman, its Secretary, this 30th day of June, 1994.

AGR ACQUISITION CORPORATION

BY: Gary T. Hancock
Gary T. Hancock, President

ATTEST:

BY: Ann Steelman
Ann Steelman, Secretary

LAW OFFICES

BURCH, PORTER & JOHNSON

130 NORTH COURT AVENUE

MEMPHIS, TENNESSEE 38103

TELEPHONE 901-523-2311
TELECOPIER 901-523-7140

July 25, 1994

CHAS. N. BURCH 1868-1936
H. D. MINOR 1868-1947
CLINTON H. MCKAY 1889-1943
JESSE E. JOHNSON, JR. 1913-1980
JOHN S. PORTER 1909-1990MORGAN KEEGAN OFFICE
50 NORTH FRONT STREET
SUITE 650
MEMPHIS, TENNESSEE 38103
TELEPHONE 901-527-2311
TELECOPIER 901-527-4199LUCIUS E. BURCH, JR.
W. J. MICHAEL CODY
JOEL PORTER
CHARLES F. NEWMAN
C. THOMAS CATES
JOE H. DUNCAN
JOHN A. STEHMLER
J. BROOKE LATHRAM
JEFF FIEBELMAN
DEWITT H. SHY, JR.
R. MICHAEL POTTER
JOHN W. CHANDLER, JR.
DAVID J. HARRIS
WARNER B. RODDA
DAVID H. LILLARD, JR.
HOLLY K. LILLARD
SAM L. CHAIN, JR.
NATHAN A. BICKSSTEPHEN D. CRAWLEY
LAUREL C. WILLIAMS
LISA A. KRUPICKA
LEEANNE MARSHALL COX
RICHARD R. SPORE, III
BETH WEEHS BRADLEY
KATHRYN E. STORY
LES JONES
MELISSA A. MARAVICH
RICKY E. WILKINS
TODD A. ROSE
REVA M. KRIEDEL
SUSAN CLARK TAYLOR
DOUGLAS F. HALIJAN
JOHN W. CAMPBELL
R. PORTER FEILD

Ms. Ann Zempolich
Plant Variety Protection Office
U. S. Department of Agriculture
500 NAL Building
10301 Baltimore Boulevard
Beltsville, MD 20705

Re: Agripro Biosciences Inc. Sale of PVPs to AGR Acquisition Corporation (which has changed its name to Agripro Seeds, Inc.)

Dear Ms. Zempolich:

I am enclosing herewith the Bill of Sale and Assignment wherein Agripro Biosciences Inc. has sold and assigned all of its right, title and interest in and to the PVPs listed on the attachment to the Bill of Sale to AGR Acquisition Corporation and hereby request that your records be changed to show the new owner as Agripro Seeds, Inc., the new name of AGR Acquisition Corporation. It is our understanding that the attachment was generated by someone in your office and forwarded to Agripro Biosciences Inc. at its request, and was subsequently forwarded to our office as attorneys for the purchaser in connection with the sale transaction.

As I indicated to you in our several previous telephone conversations, AGR Acquisition Corporation changed its corporate name to Agripro Seeds, Inc. the same date as the closing of the sale. I am enclosing herewith a copy of the Certificate of Amendment filed by the Delaware Secretary of State wherein the corporate name is changed.

If I counted correctly, there are 149 PVP certificates listed on the attachment to the Bill of Sale and Assignment. I am enclosing a check in the amount of \$3,725.00 payable to United States Treasury in payment of the \$25.00 per certificate fee to change the owner's name on your records.

THIS DOCUMENT HAS A COLORED BACKGROUND - NOT A WHITE BACKGROUND THIS DOCUMENT HAS A COLORED BACKGROUND



HELENA CHEMICAL COMPANY
Suite 3200 - Clark Tower
5100 Poplar Avenue
Memphis, Tennessee 38137

DATE

CHECK NUMBER

7-8-94

22406

PROTECTION
AMOUNT

EXACTLY \$3,725.00

PAY THIS AMOUNT

\$3,725.00

United States Treasury

PAY TO THE
ORDER OF

HELENA CHEMICAL COMPANY

by

AUTHORIZED SIGNATURES

12. DISEASE, INSECT, AND NEMATODE RESISTANCE: (Enter resistance of submitted and check cultivars. Circle check cultivars used.)

DISEASE	CULTIVAR	% RESISTANT PLANTS	AVG. SEVERITY INDEX (ASI)	ASI LSD .05	TEST, YEAR & LOCATION ^{4/}
Fusarium wilt OTHER	(SUBMITTED)	21.1	3.00	.47	1979 University of Minn., St. Paul
	(RES. CK.) Moapa 69	62.8	1.57		
	(SUS. CK.) MnGN-1	7.6	4.46		
OTHER	(SUBMITTED)				
	(RES. CK.)				
	(SUS. CK.)				
INSECT	CULTIVAR	% SEEDLING SURVIVAL	AVG. SEVERITY INDEX (ASI)	ASI LSD .05	TEST, YEAR & LOCATION ^{4/}
PEA APHID	(SUBMITTED)				
	(RES. CK.) KANZA				
	(SUS. CK.) RANGER				
Biotype H SPOTTED ALFALFA APHID	(SUBMITTED)	4.9	--	LSD .05 % Res.	1979 Tucson, Arizona Dr. M. W. Nielson
	MSTT (RES. CK.) KANZA	79.6	--	11.16	
	Caliverde (SUS. CK.) RANGER	0.0	--		
INSECT	CULTIVAR	% DEFOLIATION	AVG. SEVERITY INDEX (ASI)	ASI LSD .05	TEST, YEAR & LOCATION ^{4/}
ALFALFA WEEVIL	(SUBMITTED)				
	(RES. CK.) ARK				
	(SUS. CK.) VERNAL				
INSECT	CULTIVAR	% RESISTANT PLANTS	EMERGED ADULTS PER PLANT	EMERGED LSD .05	TEST, YEAR & LOCATION ^{4/}
ALFALFA SEED CHALCID	(SUBMITTED)				
	(RES. CK.) LAHONTAN				
	(SUS. CK.) SONORA				
INSECT	CULTIVAR	% RESISTANT PLANTS	AVG. SEVERITY INDEX (ASI)	ASI LSD .05	TEST, YEAR & LOCATION ^{4/}
POTATO LEAF-HOPPER	(SUBMITTED)	16.94	4.73	.40	1980 Ames, Iowa North American Plant Breeders
	Weevilchek (RES. CK.)	37.04	4.10		
	Saranac (SUS. CK.)	9.36	5.10		
OTHER	(SUBMITTED)				
	(RES. CK.)				
	(SUS. CK.)				

^{4/} Give: The institution in charge of test, (2) year, and (3) location of test. Describe test procedure if it differs from procedure suggested in ARS-NC-19, September 1974.

12. DISEASE, INSECT, AND NEMATODE RESISTANCE: (Enter resistance of submitted and check cultivars. Circle check cultivars used.)

INSECT	CULTIVAR	% RESISTANT PLANTS	AVG. SEVERITY INDEX (ASI)	ASI LSD .05	TEST, YEAR & LOCATION <u>4/</u>
OTHER	(SUBMITTED)				
	(RES. CK.)				
	(SUS. CK.)				
NEMATODE	CULTIVAR	% RESISTANT PLANTS	INDEX (ASI)	ASI LSD .05	TEST, YEAR & LOCATION <u>4/</u>
STEM NEMATODE	(SUBMITTED)				
	(RES. CK.) LAHONTAN				
	(SUS. CK.) RANGER				
NORTHERN ROOT KNOT NEMATODE	(SUBMITTED)				
	(RES. CK.) NEV. SYN. XX				
	(SUS. CK.) LAHONTAN				
SOUTHERN ROOT KNOT NEMATODE	(SUBMITTED)				
	(RES. CK.) MOAPA 69				
	(SUS. CK.) LAHONTAN				
OTHER	(SUBMITTED)				
	(RES. CK.)				
	(SUS. CK.)				

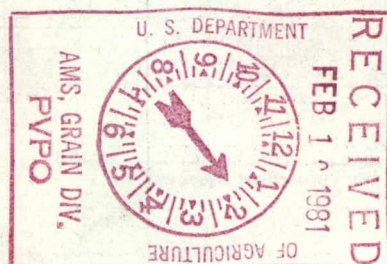
13. INDICATE A VARIETY THAT MOST CLOSELY RESEMBLES THE VARIETY SUBMITTED FOR THE FOLLOWING CHARACTERS:

CHARACTER	VARIETY	CHARACTER	VARIETY
AREA OF ADAPTATION	Apollo	PLANT HEIGHT	Apollo
RECOVERY AFTER CUTTING	Apollo	WINTER HARDINESS	Apollo

REFERENCES

Barnes, D.K., and C.H. Hanson, An Illustrated Summary of Genetic Traits in Tetraploid and Diploid Alfalfa, ARS Technical Bul. 1370.
 Barnes, D.K., et al, Standard Tests to Characterize Pest Resistance in Alfalfa Varieties. ARS-NC-19, September 1974.
 Nittler, L.W., G.W. McKee, and J.L. Newcomer, Principles and Methods of Testing Alfalfa Seed for Varietal Purity. New York Agricultural Experiment Station Bul. 807.
 USDA Agricultural Handbook No. 424.

COMMENTS



10. GIVE ITEM LENGTH FREQUENCY DISTRIBUTION FOR SUBMITTED AND 1 TO 5 STANDARD VARIETIES 1/

VARIETY NAME	STEM LENGTH FREQUENCY DISTRIBUTION 2/											AVERAGE STEM LENGTH
	0 - 5 mm. %	6 - 10 mm. %	11 - 15 mm. %	16 - 20 mm. %	21 - 30 mm. %	31 - 40 mm. %	41 - 50 mm. %	51 - 60 mm. %	61 - 70 mm. %	71 - 80 mm. %	81 + mm. %	

11. FLOWER COLOR 3/ (DETERMINE COLOR ON FRESHLY OPENED FLOWERS)

0 9 5 % PURPLE 0 0 5 % VARIEGATED 0 0 0 % YELLOW 0 0 0 % CREAM 0 0 0 % WHITE

12. DISEASE, INSECT, AND NEMATODE RESISTANCE: (Enter resistance of submitted and check cultivars. Circle check cultivars used.)

DISEASE	CULTIVAR	% RESISTANT PLANTS	AVG. SEVERITY INDEX (ASI)	ASI LSD .05	TEST, YEAR & LOCATION 4/
BACTERIAL WILT	(SUBMITTED)	39.0	2.07	.44	1979 University of Minnesota, St. Paul
	(RES. CK.) VERNAL	39.2	2.11		
	(SUS. CK.) NARRAGANSETT	0.0	4.00		
ANTHRACNOSE Race 1	(SUBMITTED)	23	--	LSD.05 % Res.	1980 Beltsville, Maryland Elgin and Ostazeski
	(RES. CK.) ARC	65	--	13	
	(SUS. CK.) SARANAC	2	--		
COMMON LEAF SPOT	(SUBMITTED)				
	(RES. CK.) RAMSEY				
	(SUS. CK.) RANGER				
DOWNY MILDEW	(SUBMITTED)				
	(RES. CK.) SARANAC				
	(SUS. CK.) KANZA				
PHYTOPHTHORA ROOT ROT	(SUBMITTED)	44.8	2.97	.54	1979 University of Minnesota, St. Paul
	(RES. CK.) AGATE	43.7	3.15		
	(SUS. CK.) SARANAC	2.1	4.80		
Anthracnose Race 2	(SUBMITTED)	12	--	LSD .05 % Res.	1980 Beltsville, Maryland Elgin and Ostazeski
	(RES. CK.) Saranac AR	53	--	13	
	(SUS. CK.) Saranac	0	--		

1/ Preferred standards: Saranac, Vernal, Norseman, Lahontan, Mesa Sirsa. Twelve hours light at 25° C with 20,000 lux of cool white florescent; 2,000 lux of incandescent filament light and twelve hours darkness at 5° C.

2/ From cotyledonary node to tip of stem 20 days after planting.

3/ For further clarification consult USDA Agricultural Handbook No. 424.

4/ Give: The institution in charge of test, (2) year, and (3) location of test. Describe test procedure if it differs from procedure suggested in ARS-NC-19, September 1974.

FORM GR 470-32
(3/75)U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
GRAIN DIVISION
HYATTSVILLE, MARYLAND 20782

EXHIBIT C

OBJECTIVE DESCRIPTION OF VARIETY
Alfalfa (Medicago sativa L. complex)

NAME OF APPLICANT(S) North American Plant Breeders	VARIETY NAME OR TEMPORARY DESIGNATION Advantage
ADDRESS (Street and No., or R.F.D. No., City, State, and Zip Code) 5201 Johnson Drive, P. O. Box 2955, Mission, Kansas 66201	FOR OFFICIAL USE ONLY PVPO NUMBER 8100064

Place the appropriate number that describes the varietal character of this variety in the boxes below.
Place a zero in first box (e.g. or) when number is either 99 or less or 9 or less.

NOTE: For single plant data a minimum of 100 plants is suggested

1. PRIMARY AREA OF ADAPTATION		INDICATE AREA WHERE TEST WAS CONDUCTED. FURTHER EXPLANATION CAN GO IN COMMENTS AT THE END OF THE FORM.
<input type="text" value="2"/> 1 = NORTHWEST 2 = NORTHCENTRAL 3 = NORTHEAST 4 = SOUTHEAST 5 = SOUTHWEST 6 = SOUTHERN PLAINS 7 = INTERMOUNTAIN		<input type="text" value="2"/> <input type="text" value="1"/> AREA TESTED
2. WINTER HARDINESS		
<input type="text" value="6"/> 1 = NON-HARDY (Mesa Sirsa) 3 = INTERMEDIATE NON-HARDY 5 = MODERATELY HARDY (Saranac) 7 = HARDY (Vernal) 9 = EXTREMELY HARDY (Norseman)		<input type="text" value="2"/> AREA TESTED
<input type="text" value="2"/> SOURCE OF INFORMATION: 1 = ANTICIPATED 2 = MEASURED		
3. FALL GROWTH HABIT		
<input type="text" value="5"/> 1 = ERECT (Mesa Sirsa) 3 = SEMIERECT (DuPuits) 5 = INTERMEDIATE (Saranac) 7 = SEMIDECUMENT (Vernal) 9 = DECUMBENT (Norsement)		<input type="text" value="2"/> <input type="text" value="1"/> AREA TESTED
4. RECOVERY AFTER FIRST SPRING CUTTING		
<input type="text" value="3"/> 1 = VERY FAST (Mesa Sirsa) 3 = FAST (Saranac) 5 = INTERMEDIATE 7 = SLOW (Vernal) 9 = VERY SLOW (Norseman)		<input type="text" value="2"/> <input type="text" value="1"/> AREA TESTED
5. FLOWERING DATE (FIRST SPRING GROWTH)		
<input type="text" value=""/> <input type="text" value=""/> DAYS EARLIER THAN <input type="text" value=""/> <input type="text" value=""/> DAYS LATER THAN	<input type="text" value=""/> 1 = MESA SIRSA 2 = LAHONTAN 3 = SARANAC 4 = VERNAL 5 = NORSEMAN	<input type="text" value=""/> AREA TESTED
6. CROWN TYPE		
<input type="text" value="5"/> 1 = SPREADING ROOTS 3 = SPREADING RHIZOMES (Teton) 5 = BROAD (Vernal) 7 = INTERMEDIATE (Saranac) 9 = NARROW (Mesa Sirsa)		<input type="text" value="2"/> AREA TESTED
7. PLANT COLOR		
<input type="text" value="4"/> 3 = DARK GREEN (Weevichek) 5 = GREEN (Vernal) 7 = LIGHT GREEN (Ranger)		<input type="text" value="2"/> AREA TESTED
8. HAIRINESS		
<input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/>	% PLANTS WITH PUBESCENT STEMS	<input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/>
		% PLANTS WITH PUBESCENT PODS
9. POD SHAPE		
<input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/>	% PLANTS WITH TIGHT COILS	<input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/>
	% PLANTS WITH LOOSE COILS	<input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/>
		% PLANTS WITH SICKLE PODS (Less than 1 coil)